CLAIMS:

1. Data compression apparatus for data compressing a digital information signal, the data compression apparatus comprising

- input means for receiving the digital information signal,
- probability signal determining means for determining a probability signal from the digital information signal,
- entropy encoding means for entropy encoding the digital information signal in response to said probability signal so as to obtain a data compressed digital information signal, and
- output means for supplying the data compressed digital information signal,

characterized in that the probability signal determining means is adapted for determining a new value of said probability signal from the digital information signal and at least one previously determined value of said probability signal.

2. Apparatus as claimed in claim 1, characterized in that the probability signal determining means is adapted to perform the following computation:

$$P_{k+1}(1) = P_k(1) - \lfloor P_k(1) / 2^{-i} \rfloor + b_k \cdot 2^{m-i},$$

where $P_{k+1}(1)$ and $P_k(1)$ are unsigned integers in the range $0 \ldots 2^m$ and b_k is the newest input bit with a value of 0 or 1, and i is an integer in the range $0 \leq i \leq m/2$ and m is an integer > 1.

3. Transmitter for transmitting a digital information signal via a transmission medium, comprising the data compression apparatus as claimed in anyone of the claims 1 to 2, wherein the transmitter further comprises

- transmission means for applying the data compressed digital information signal to the transmission medium.

4. Recording apparatus for recording an digital information signal on a record carrier, comprising the data compression apparatus as claimed in anyone of the claims 1 to 2, wherein the recording apparatus further comprises

- writing means for writing the data compressed signal in a track on the record carrier.

5. Recording apparatus as claimed in claim 4, wherein the record carrier is an optical or a magnetic record carrier.

6. Transmitter as claimed in claim 3, wherein the transmitter further comprises error correction encoding means and/or channel encoding means, for error correction encoding and/or channel encoding the data compressed digital information signal prior to applying the data compressed digital information signal to the transmission medium.

7. Recording apparatus as claimed in claim 4, further comprising error correction encoding means and/or channel encoding means, for error correction encoding and/or channel encoding the data compressed digital information signal prior to writing the data compressed digital information signal on the record carrier.

8. Method for data compressing a digital information signal, the method comprising the steps of:

- receiving the digital information signal,
- determining a probability signal from the digital information signal,
- entropy encoding the digital information signal in response to said probability signal so as to obtain so as to obtain a data compressed digital information signal, and
- supplying the data compressed digital information signal,

characterized in that the probability determining step is adapted to determine a new value of said probability signal from the digital information signal and at least one previously determined value of said probability signal.

9. Record carrier having a data compressed digital information signal recorded on it in a track of said record carrier, the data compressed digital information signal being obtained by the method according to claim 8.

10. Data expansion apparatus for data expanding a data compressed digital information signal so as to obtain a replica of an original digital information signal, the data expansion apparatus comprising

- input means for receiving the data compressed digital information signal,
- entropy decoding means for entropy decoding the data compressed digital information signal in response to a probability signal so as to obtain said replica,

- probability signal determining means for generating said probability signal from said replica,
- output means for supplying replica,

characterized in that said probability signal determining means are adapted to determine a new value of said probability signal from the replica and at least one previously determined value of said probability signal.

11. Apparatus as claimed in claim 10, characterized in that the probability signal determining means is adapted to perform the following computation:

$$P_{k+1}(1) = P_k(1) - \lfloor P_k(1)/2^{-i} \rfloor + b_k \cdot 2^{m-i},$$

where $P_{k+1}(1)$ and $P_k(1)$ are unsigned integers in the range $0 \ldots 2^m$ and b_k is the newest input bit with a value of 0 or 1, and i is an integer in the range $0 \leq i \leq m/2$ and m is an integer > 1.

12. Receiver for receiving an digital information signal via a transmission medium, comprising the data expansion apparatus as claimed in anyone of the claims 10 to 11, wherein the receiver further comprises

- receiving means for retrieving the data compressed signal from the transmission medium.

13. Reproducing apparatus for reproducing an digital information signal from a record carrier, comprising the data expansion apparatus as claimed in anyone of the claims 10 to 11, wherein the reproducing apparatus further comprises

- reading means for reading the data compressed signal from a track on the record carrier.

14. Receiver as claimed in claim 12, wherein the receiver further comprises channel decoding means and/or error correction means, for channel decoding and/or error correcting the signal retrieved from the transmission medium so as to obtain said data compressed signal

15. Reproducing apparatus as claimed in claim 13, further comprising channel decoding means and/or error correction means, for channel decoding and/or correcting the signal read from the record carrier so as to obtain said data compressed signal.

16. Data expansion method for data expanding a data compressed digital information signal so as to obtain a replica of an original digital information signal, the data expansion method comprising the steps of:

- receiving the data compressed digital information signal,
- entropy decoding the data compressed digital information signal in response to a probability signal so as to obtain said replica,
- generating said probability signal from said replica,
- supplying replica,

characterized in that said probability signal determining step is adapted to determine a new value of said probability signal from the replica and at least one previously determined value of said probability signal.